





1638

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/534,861A

DATE: 04/08/2002 TIME: 16:09:37

Input Set : A:\15313SEQ.txt

```
Output Set: N:\CRF3\04082002\I534861A.raw
      3 <110> APPLICANT: Smeekens, J.C.M.
              Ebskamp, Michael
      4
              Geerts, Hendrikis
      6
              Weisbeek, Petrus
      8 <120> TITLE OF INVENTION: Production of Oligosaccharides in Transgenic Plants
     10 <130> FILE REFERENCE: ARNO-1-15313
C--> 12 <140> CURRENT APPLICATION NUMBER: US/09/534,861A
     13 <141> CURRENT FILING DATE: 2000-03-24
     15 <150> PRIOR APPLICATION NUMBER: US 09/019,385
     16 <151> PRIOR FILING DATE: 1998-02-05
                                                                 ENTERED
     18 <150> PRIOR APPLICATION NUMBER: US 09/193,385
     19 <151> PRIOR FILING DATE: 1998-11-17
     21 <150> PRIOR APPLICATION NUMBER: US 08/479,470
     22 <151> PRIOR FILING DATE: 1995-06-07
     24 <150> PRIOR APPLICATION NUMBER: NL 1000064
     25 <151> PRIOR FILING DATE: 1995-04-05
     27 <150> PRIOR APPLICATION NUMBER: NL 9401140
     28 <151> PRIOR FILING DATE: 1994-08-07
     30 <160> NUMBER OF SEQ ID NOS: 12
     32 <170> SOFTWARE: PatentIn version 3.0
     34 <210> SEO ID NO: 1
     35 <211> LENGTH: 2094
     36 <:212> TYPE: DNA
     37 <213> ORGANISM: Barley
     39 <220> FEATURE:
     40 <221> NAME/KEY: CDS
     41 <222> LOCATION: (46)..(1923)
     43 <400> SEQUENCE: 1
     44 geteagaate taccaaacee teteggagtt gaegagegge geege atg ggg tea eac
                                                                              57
     45
                                                          Met Gly Ser His
     46
     48 ggc aag cca ccg cta ccg tac gcc tac aag ccg ctg ccc tcg gac gcc
                                                                             105
     49 Gly Lys Pro Pro Leu Pro Tyr Ala Tyr Lys Pro Leu Pro Ser Asp Ala
                            1.0
     52 god gad ggt aag dgg add ggd tgd atg agg tgg tod gdg tgt gdd add
                                                                             153
     53 Ala Asp Gly Lys Arg Thr Gly Cys Met Arg Trp Ser Ala Cys Ala Thr
                        25
                                            30
                                                                             201
     56 gtg etg aeg gee teg gee atg geg gtg gtg gte gge gee aeg ete
     57 Val Leu Thr Ala Ser Ala Met Ala Val Val Val Gly Ala Thr Leu
     58
                    40
                                                            50
                                        45
     60 etg geg gga ttg agg atg gag eag gee gte gae gag gag geg geg
                                                                             249
     61 Leu Ala Gly Leu Arg Met Glu Gln Ala Val Asp Glu Glu Ala Ala Ala
               55
                                    60
                                                        65
```

RAW SEQUENCE LISTING

DATE: 04/08/2002 PATENT APPLICATION: US/09/534,861A TIME: 16:09:37

Input Set : A:\15313SEQ.txt

Output Set: N:\CRF3\04082002\I534861A.raw

. a ===																
pa ggo	e ggg	ttc	ccg	tgg	agc	aac	gag	atg	ctg	cag	tgg	cag	cgc	agc	ggt	297
65 Gl;	y Gly	Phe	Pro	Trp	Ser	Asn	Glu	Met	Leu	Gln	Trp	Gln	Arg	Ser	Gly	
бh	7.0					75					80					
68 tac			_	_	-											345
69 Ty:	r His	Phe	Gln	Thr	Ala	Lys	Asn	Tyr	Met	Ser	Asp	Pro	Asn	Gly	Leu	
~:n 85					90					95					100	
72 atq																393
73 Met	t Tyr	Tyr	Arg		Trp	Tyr	His	Met	Phe	Tyr	Gln	Tyr	Asn		Val	
74				105					110					115		
16 ggd																441
77 Gl	y Thr	Asp	_	Asp	Asp	Gly	Met		Trp	Gly	His	Ala		Ser	Arg	
78			120					125					130			
80 aad																489
81 Ası	n Leu		Gln	Trp	Arg	Thr		Pro	He	Ala	Met		Ala	Asp	GIn	
8.2		135					140					145				F 2.7
84 tg																537
85 Tr		Asp	He	Leu	Gly		Leu	ser	GIY	Ser		Thr	vaı	Leu	Pro	
86	150					155					160				~~~	Eas
88 aad	, , ,	_	_		_			_		-			-		_	585
89 Ası	_	Thr	val	He		rre	Tyr	Thr	GIY		Thr	ASN	Ala	ser		
90 165					170					175					180	633
92 gtg																633
93 Val	L GIU	val	GIII	_	rre	АІа	1111	PIO	190	Asp	PIO	ASII	ASP	195	Leu	
94 96 cto		aaa	taa	185	220	030	200	aaa		000	ata	a t c	taa		cca	681
90 CLC	5 696	Cuu	Luu	acc	aau	Cat	ししし	u.c	aac		CIL.C.					001
97 Let			Trp					Ala					Trp			
97 Let 98	ı Arg	Arg	Trp 200	Thr	Lys	His	Pro	Ala 205	Asn	Pro	Val	Ile	Trp 210	Ser	Pro	
97 Let 98 100 cc	a Arg	Arg g gto	Trp 200 c ggc	Thr	Lys aag	His gat	Pro ttc	Ala 205 cga	Asn gac	Pro ccg	Val ratg	Ile acc	Trp 210 gcc	Ser tgg	Pro	729
97 Let 98 100 cc 101 Pi	a Arg	Arg g gto y Val	Trp 200 ggc Gly	Thr	Lys aag	His gat	Pro ttc Phe	Ala 205 cga Arg	Asn gac	Pro ccg	Val ratg	Ile acc Thr	Trp 210 gcc Ala	Ser tgg	Pro	
97 Let 98 100 cc 101 Pr 102	a Arg	Arg g gto y Val 219	Trp 200 ggc Gly	Thr acc Thr	Lys aag Lys	His gat Asp	Pro ttc Phe 220	Ala 205 cga Arg	Asn gac Asp	Pro ccg Pro	Val rato Met	Ile acc Thr 225	Trp 210 gcc Ala	Ser tgg Trp	Pro tac Tyr	
97 Let 98 100 co 101 Pt 102 104 ga	a Arg cg gg ro Gl ac ga	Arg g gto y Val 219 g tco	Trp 200 c ggc l Gly c gac	Thr acc Thr	Lys aag Lys aca	His gat Asp	Pro ttc Phe 220	Ala 205 cga Arg	Asn gac Asp	Pro ccg Pro	Val rato Met	Ile acc Thr 225	Trp 210 gcc Ala	Ser tgg Trp	Pro tac Tyr	729
97 Let 98 100 cc 101 Pr 102	a Arg cg gg ro Gl ac ga	Arg g gto y Val 219 g too u Sei	Trp 200 c ggc l Gly c gac	Thr acc Thr	Lys aag Lys aca	His gat Asp	Pro tto Phe 220 cgc Arg	Ala 205 cga Arg	Asn gac Asp	Pro ccg Pro	Val rato Met	Ile acc Thr 225 tcc Ser	Trp 210 gcc Ala	Ser tgg Trp	Pro tac Tyr	729
97 Let 98 100 cc 101 Pt 102 104 ga 105 As 106	a Arg cg gg ro Gl ac ga sp Gl 23	Arg g gto y Val 219 g too u Sen	Trp 200 e ggc l Gly c gac c Asp	Thr acc Thr gag Glu	Lys aag Lys aca Thr	His gat Asp tgg Trp 235	Pro tto Phe 220 cgc Arg	Ala 205 cga Arg	Asn gac Asp ctc	Pro ccg Pro ctc	Val gatg Met ggg Gly 240	Ile acc Thr 225 tcc Ser	Trp 210 gcc Ala aag	Ser tgg Trp gac Asp	tac Tyr gac Asp	729
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 108 ca	cg gg ro Gl ac ga sp Gl 23 ac ga	Arg g gto y Val 215 g too u Sen 0 c ggo	Trp 200 e ggc l Gly c gac e gac e Asp	Thr acc Thr gag	Lys aag Lys aca Thr	His gat Asp tgg	Pro ttc Phe 220 cgc Arg	Ala 205 cga Arg acc Thr	Asn gac Asp ctc Leu	Pro ccg Pro ctc	Val gatg Met ggg Gly 240 gtac	Ile acc. Thr 225 tcc Ser	Trp 210 gcc Ala aag Lys	Ser tgg Trp gac Asp	tac Tyr gac Asp	7 <i>2</i> 9
97 Let 98 100 cc 101 Pt 102 104 ga 105 As 106	eg gg ro Gl ac ga sp Gl 23 ac ga is As	Arg g gto y Val 215 g too u Sen 0 c ggo	Trp 200 e ggc l Gly c gac e gac e Asp	Thr acc Thr gag	Lys aag Lys aca Thr	His gat Asp tgg Trp 235	Pro ttc Phe 220 cgc Arg	Ala 205 cga Arg acc Thr	Asn gac Asp ctc Leu	Pro ccg Pro ctc	Val mate Met ggg Gly 240 mate Tyr	Ile acc. Thr 225 tcc Ser	Trp 210 gcc Ala aag Lys	Ser tgg Trp gac Asp	tac Tyr gac Asp	7 <i>2</i> 9
97 Let 98 100 cc 101 Pr 102 104 gc 105 As 106 108 cc 109 Hi 110 24	og gg ro Gl ac ga sp Gl 23 ac ga is As	Arg g gto y Val 215 g too u Sen 0 c ggo p Gly	Trp 200 e ggc Gly G gac Asp c cac His	Thr acc Thr gag Glu cac	Lys aag Lys aca Thr gac Asp 250	His gat Asp tgg Trp 235 ggc	Pro ttc Phe 220 cgc Arg atc	Ala 205 cga Arg acc Thr	Asn gac Asp ctc Leu atg	Pro ccg Pro ctc Leu atg	Val y atgo Met : ggg : Gly 240 y tac : Tyr	Ile acc Thr 225 tcc Ser aag	Trp 210 gcc Ala aag Lys acc	Ser tgg Trp gac Asp aag	Pro tac Tyr gac Asp gac Asp 260	7 <i>2</i> 9
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 109 H3 110 24 112 tt	or Arg org gg ro Gl ac ga sp Gl 23 ac ga is As 15	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gly	Trp 200 e ggc GlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyG	Thr acc Thr gag Glu cac His	Lys aag Lys aca Thr gac Asp 250 ctc	His gat Asp tgg Trp 235 ggc Gly	Pro ttc Phe 220 cgc Arg atc	Ala 205 cga Arg Arg cacc Thr	Asn gac Asp ctc Leu atg	Pro ccg Pro ctc Leu atg Met 255	Val y atgo Met gggg Gly 240 y tac Tyr	Ile acc. Thr 225 tcc Ser aag Lys	Trp 210 gcc Ala aag Lys acc Thr	Ser tgg Trp gac Asp aag Lys	tac Tyr gac Asp gac Asp 260 cgc	729 777 825
97 Let 98 100 cc 101 Pr 102 104 gc 105 As 106 108 cc 109 Hi 110 24	or Arg org gg ro Gl ac ga sp Gl 23 ac ga is As 15	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gly	Trp 200 e ggc GlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyGlyG	Thr acc Thr gag Glu cac His	Lys aag Lys aca Thr gac Asp 250 ctc Leu	His gat Asp tgg Trp 235 ggc Gly	Pro ttc Phe 220 cgc Arg atc	Ala 205 cga Arg acc Thr gcc Ala	Asn gac Asp ctc Leu atg	Pro ccg ctc Leu atg Met 255	Val y atgo Met gggg Gly 240 y tac Tyr	Ile Tacc Thr 225 Tcc Ser Lys	Trp 210 gcc Ala aag Lys acc Thr	Ser tgg Trp gac Asp aag Lys	tac Tyr gac Asp gac Asp 260 cgc Arg	729 777 825
97 Let 98 100 cd 101 Pr 102 104 ga 105 As 106 109 Hi 110 24 112 tt 113 Pr	eg gg ro Gl ac ga sp Gl 23 ac ga is As 45 cc ct ne Le	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gl c aac u Asn	Trp 200 e ggc Gly G c gac Asp c cac His	Thr acc Thr gag Glu cac His gag Glu 265	Lys aag Lys aca Thr gac Asp 250 ctc Leu	His gat Asp tgg Trp 235 ggc Gly atc	Pro ttc Phe 220 cgc Arg atc Ile	Ala 205 cga Arg acc Thr cgc Ala	Asn gac Asp ctc Leu atg Met	Pro ccg Pro ctc Leu atg Met 255 ttg	Val gate p Met ggg Gly 240 gtac Tyr	Ile acc Thr 225 tcc Ser aag Lys cgg	Trp 210 gcc Ala aag Lys acc Thr gtg	tgg Trp gac Asp aag Lys gtg Val 275	tac Tyr gac Asp gac Asp 260 cgc	729 777 825
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 109 Hi 110 24 111 tt 113 Pr 114 116 ac	eg gg ro Gl ac ga sp Gl 23 ac ga is As 45 cc ct ne Le	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gl c aac u Asn c gac	Trp 200 e ggc Gly G c gac Asp c cac His c tac Tyr	Thr acc Thr gag Glu cac His gag Glu 265 gag	Lys aag Lys aca Thr gac Asp 250 ctc Leu	His gat Asp tgg Trp 235 ggc Gly atc atc	Pro ttc Phe 220 cgc Arg atc Ile ccg Pro	Ala 205 cga Arg acc Thr gcc Ala Gly Gly	Asn gac Asp ctc Leu atg Met atc 270 tac	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc	Val gates Met ggg Gly 240 tac Tyr cac His	Ile acc Thr 225 tcc Ser aag Lys cgg Arg	Trp 210 gcc Ala aag Lys acc Thr gtg Val	tgg Trp gac Asp aag Lys yal 275	Pro tac Tyr gac Asp gac Asp 260 cgc Arg	729 777 825 873
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 109 Hi 110 24 111 tt 113 Pr 114 116 ac	eg gg ro Gl ac ga sp Gl 23 ac ga is As; 45 cc ct ne Le	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gl c aac u Asn c gac	Trp 200 e ggc Gly G c gac Asp c cac His c tac Tyr	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu	Lys aag Lys aca Thr gac Asp 250 ctc Leu	His gat Asp tgg Trp 235 ggc Gly atc atc	Pro ttc Phe 220 cgc Arg atc Ile ccg Pro	Ala 205 cga Arg acc Thr gcc Ala Gly Gly	Asn gac Asp ctc Leu atg Met 270 tac Tyr	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc	Val gates Met ggg Gly 240 tac Tyr cac His	Ile acc Thr 225 tcc Ser aag Lys cgg Arg	Trp 210 gcc Ala aag Lys acc Thr gtg Val	tgg Trp gac Asp aag Lys gtg Val 275 aga Arg	Pro tac Tyr gac Asp gac Asp 260 cgc Arg	729 777 825 873
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 109 Hi 110 24 112 tt 113 Pr 114 116 ac 117 Tr	eg gg ro Gl ac ga sp Gl 23 ac ga is As to ct to ct to ct to ct to ct to ct to ct to ct fine Le	Arg g gtc y Val 21: g tcc u Sen c ggc p Gly c aac u Asn c gac	Trp 200 e ggc Gly c gac Asp c cac His c tac Tyr g tgg	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc	His gat Asp tgg Trp 235 ggc Gly atc Ile	Pro ttc Phe 220 Cgc Arg atc Ile cgc Pro	Ala 205 cga Arg acc Thr gcc Ala ggc Gly ttc	Asn gac Asp ctc Leu atg Met 270 tag Tyr	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc	Val gate Met ggg 240 tac Tyr cac His	Ile I acc Thr 225 I tcc Ser Lys Cgg Arg	Trp 210 gcc Ala aagg Lys acc Thr gtg Val cgg Arg 290	tgg Trp gac Asp aag Lys gtg Val 275 aga Arg	tac Tyr gac Asp gac Asp 260 cgc Arg	729 777 825 873
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 108 ca 109 Hi 110 24 112 tt 113 Pr 114 116 ac 117 Tr 118 120 ac 121 Se	eg gg ro Gl ac ga sp Gl 23 ac ga is As to ct to ct cc gg ar Gl;	Arg g gtc y Val g tcc u Sen 0 c ggc p Gl y Gl y Gl c aac p Asr	Trp 200 2 ggc 6 Gly 5 c gac 7 His 8 tac 7 Trp 280 8 tcg 6 tcg 6 tcg 7 Ser	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu tcg	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc Cys	His gat Asp tgg Trp 235 ggc Gly atc Ile atc atg	Pro ttc Phe 220 Arg atc Ile ccg Pro Asp	Ala 205 cga Arg acc Thr gcc Ala ggc Htc 285 cac His	Asn gac Asp ctc Leu atg Met 270 tag Tyr	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc	Val yate yate gggg 240 tac Tyr cac His	Ile acc Thr 225 tcc Ser aag Lys cgg Arg	Trp 210 gcc Ala aagg Lys acc Thr gtg Val cgg Arg 290 agc Ser	tgg Trp gac Asp Lys gtg Val 275 aga Arg	tac Tyr gac Asp gac Asp 260 cgc Arg agc ser	729 777 825 873 921
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 109 Hi 110 24 112 tt 113 Pr 114 116 ac 117 Tr 118 120 ac 121 Se 122	a Arg gg gg ro Gl ac ga sp Gl 23 ac ga is As to ct ne Le cc gg gc ga er As	Arg g gtc y Val g tcc u Sen 0 c ggc p Gl c aac u Asn c gac y Gl c aac p Asn 2 295	Trp 200 2 ggc 6 Gly 5 c gac 7 His 8 tac 7 Tyr 9 tgg 1 Trp 280 8 tcg 6 Ser	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu tcg Ser	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc Cys gag Glu	His gat Asp tgg Trp 235 ggc Gly atc Ile atc Met	Pro ttc Phe 220 Arg Arg atc Ile ccg Pro datc Leu 300	Ala 205 cga Arg acc Thr gcc Ala ggc Gly ttc Phe 285 cac His	Asn gac Asp ctc Leu atg Met atc Ile 270 tac Tyr gtg	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc Pro	Val yatçı yatçı yatçı Gly 240 yatçı His yatçı Val	Ile I acc Inr 225 I tcc I Ser I aag I Lys I Cgg I Arg I ggc I ggc I Ala 305	Trp 210 gcc Ala aag Lys acc Thr gtg Val cgg Arg 290 agc Ser	tgg Trp gac Asp Lys yal 275 aga Arg	tac Tyr gac Asp gac Asp 260 cgc Arg agc Ser gac	729 777 825 873 921 969
97 Let 98 100 cc 101 Pr 102 104 gc 105 As 106 109 Hi 110 24 112 tt 113 Pr 114 116 ac 117 Tr 118 120 ac 121 Se 122 124 gc	a Arg gg gg ro Gl ac ga sp Gl 23 ac ga is As is As ic ct ne Le cc gg gc ga er As ac ga ac ga	Arg g gtc y Val g tcc u Sen 0 c ggc p Gl c aac u Asn c gac y Gl c aac p Asn c 295 a cgc	Trp 200 2 ggc 3 Gly 5 c gac 4 Asp 5 c cac 7 His 8 tac 8 Tyr 9 tgg 1 Trp 280 8 tcg 6 Ser 6 cac	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu tcg ser	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc Cys gag Glu tac	His gat Asp tgg Trp 235 ggc Gly atc Ile atg Met tac	Pro Lttc Phe 220 Cgc Arg Catc Ile Ccg Pro Cgac Asp Ctg Leu 300 tcg	Ala 205 cga Arg acc Thr gcc Ala ggc Gly ttc Phe 285 cac His	Asn gac Asp ctc Leu atg Met atc Ile 270 tac Tyr gtg	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc Pro ttg Leu acg	Value aag	Ile acc Thr 225 tcc Ser aag Lys cgg Arg Gly gcg Ala 305 gac	Trp 210 gcc Ala aagg Lys acc Thr gtg Val cgg Arg 290 agc Ser tcg	tgg Trp gac Asp Lys val 275 aga Arg	tac Tyr gac Asp gac Asp 260 cgc Arg agc Ser gac	729 777 825 873 921
97 Let 98 100 cc 101 Pr 102 104 ga 105 As 106 110 24 112 tt 113 Pr 114 116 ac 117 Tr 118 120 ac 121 Se 122 124 ga 125 As 100 cc	a Arg gg gg ro Gl ac ga sp Gl 23 ac ga is As 45 ac ct ne Le cc gg gc ga g	Arg g gtc g Val 215 g tcc u Sen 0 c ggc p Gly c aac u Asn c gac y Gli c aac p Asn 295 a cgc u Arg	Trp 200 2 ggc 3 Gly 5 c gac 4 Asp 5 c cac 7 His 8 tac 8 Tyr 9 tgg 1 Trp 280 8 tcg 6 Ser 6 cac	Thr acc Thr gag Glu cac His gag Glu 265 gag Glu tcg ser	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc Cys gag Glu tac	His gat Asp tgg Trp 235 ggc Gly atc Ile atg Met tac Tyr	Pro Lttc Phe 220 Arg Arg Lea Cog Arg Lea Cog Asp	Ala 205 cga Arg acc Thr gcc Ala ggc Gly ttc Phe 285 cac His	Asn gac Asp ctc Leu atg Met atc Ile 270 tac Tyr gtg	Pro ccg Pro ctc Leu atg Met 255 ttg Leu ccc Pro ttg Leu acg	Val yato yato yato yato yato yato yato yato	Ile acc Thr 225 tcc Ser aag Lys cgg Arg Gly gcg Ala 305 gac Asp	Trp 210 gcc Ala aagg Lys acc Thr gtg Val cgg Arg 290 agc Ser tcg	tgg Trp gac Asp Lys val 275 aga Arg	tac Tyr gac Asp gac Asp 260 cgc Arg agc Ser gac	729 777 825 873 921 969
97 Let 98 100 cc 101 Pr 102 104 gc 105 As 106 109 Hi 110 24 112 tt 113 Pr 114 116 ac 117 Tr 118 120 ac 121 Se 122 124 gc	arg gg gg ga	Arg g gtc y Val 215 g tcc u Sen 0 c ggc p Gly c aac u Asn c gac u Asn 295 a cgc u Arc	Trp 200 2 ggc 6 Gly 5 gac 7 Asp 6 cac 7 His 8 tag 1 Trp 280 6 tcg 6 Ser 6 G	Thr acc Thr gag Glu cac His gag Glu tcg Ser gac	Lys aag Lys aca Thr gac Asp 250 ctc Leu tgc Cys gag Glu tac Tyr	His gat Asp tgg Trp 235 ggc Gly atc Ile atg Met tac Tyr 315	Pro ttc Phe 220 Arg Arg atc Ile pro gac Asp Leu 300 tcg Ser	Ala 205 cga Arg acc Thr gcc Ala ggc His	Asn gac Asp ctc Leu atg Met 270 tac Tyr gtg Val	Pro ccg Pro ctc Leu atg Leu ccc Pro ttg Leu acg	Value atom Met Suppose	acc. Thr 225 tcc Ser Lys cgg Arg Gly gcg Ala 305 gac Asp	Trp 210 gcc Ala aagg Lys acc Thr gtg Arg 290 agc Ser tcg Ser	tgg Trp gac Asp aag Lys val 275 aga Arg atg Ala	pro tac Tyr gac Asp gac Asp 260 cgc Arg agc Ser gac Asp	729 777 825 873 921 969

RAW SEQUENCE LISTING

DATE: 04/08/2002 PATENT APPLICATION: US/09/534,861A TIME: 16:09:37

Input Set : A:\15313SEQ.txt

Output Set: N:\CRF3\04082002\I534861A.raw

	Asn 325	Thr	Trp	Thr	Pro	Ile 330	Asp	Pro	Glu	Leu	Asp	Leu	Gly	Ile	Gly	Leu 340	
	aga	tac	a a c	taa	aaa		+++	tat	aca	too		tec	tta	tat	gat		1113
			_														1113
	Arg	туг	ASP	пр	_	Lys	Рпе	тут	АТа		1111	Ser	PHE	туг		PLO	
134					345					350					355		
	gcc																1161
137	Ala	Lys	Asn	Arg	Arg	Val	Leu	Met	Gly	Tyr	Val	Gly	Glu	Val	Asp	Ser	
138				360					365					370			
140	aag	caa	act	gat	qtc	qtc	aaq	qqa	tgg	qct	tcc	att	caq	tca	qtt	cct	1209
	Lys																
142	-1-	9	375	1127				380					385				
	agg	aco		act	cta	σat.	пап		acc	caa	aca	aac		cta	ctc	taa	1257
				-	_	-											12.5
	Arg		vai	Ата	Leu	ASP		гуѕ	1111	Arg	1111		Leu	Leu	Leu	115	
146		390					395					400					1205
	CCC																1305
149	Pro	Val	Glu	Glu	Ile	Glu	Thr	Leu	Arg	Leu	Asn	Ala	Thr	Glu	Leu	Thr	
150	405					410					415					420	
152	gac	gtt	acc	att	aac	act	ggc	tcc	gtc	atc	cat	atc	ccg	ctc	cgc	caa	1353
153	Asp	Val	Thr	Ile	Asn	Thr	Gly	Ser	Val	Ile	His	Ile	Pro	Leu	Arg	Gln	
154	-				425		-			430					435		
	ggc	act	cac	act		cat	aca	дад	acc		ttc	cac	ctt	gat	act	tcc	1401
	Gly			-	_			-	-					-			
158	$G_{1}\gamma$	1111	1113	440	AIG	1113	AIG	Giu	445	261	rne	nis	Leu	450	AIU	JCI	
										+							1.4.10
	gcc		_	_			-	-	-								1449
	Ala	Val		Ala	Leu	Asn	Glu		Asp	Val	Gly	Tyr		Cys	Ser	Ser	
162			455					460					465				
	agc																1497
165	Ser	Gly	Gly	Ala	Val	Asn	Arg	Gly	Ala	Leu	Gly	Pro	Phe	Gly	Leu	Leu	
166		470					475					480					
168	gtc	ctc	qcc	qcc	qqt	qac	cqc	cqt	qqc	gag	caa	acq	qcq	qtc	tac	ttc	1545
	Val																
170					_	490	_		-		495				•	500	
	tac	ata	tct	адд	aac		gac	gga	aac	ctc		acc	agc	ttc	tac	caa	1593
	Tyr			-													1333
174	тут	Vai	261	Arg	505	Leu	пэр	Gry	GIY	510	1113	1111	Ser	rnc	515	OIII	
					-											_ + _	3 (4 1
	gat																1641
	Asp	Glu	Leu	_	Ser	Ser	Arg	Ala	-	Asp	Val	Thr	Lys		Val	11e	
178				520					525					530			
	ggg																1689
181	Gly	Ser	Thr	Val	Pro	Val	Leu	Asp	Gly	Glu	Ala	Leu	Ser	Met	Arg	Val	
182			535					540					545				
184	ctc	ata	gat	cac	tcc	atc	qtq	caq	qqc	ttc	gac	atg	ggc	ggg	agg	acc	1737
	Leu																
186		550	F				555		1		F	560	1	1	-)		
	acg		a.c.c	toa	caa	ata		cca	ato	nan	tea		сал	пап	aca	aga	1785
																	1,00
190	Thr	Met	1111	ser	AIG		тАт	PIO	MG C	OIU	575	тАт	11 I. Cı	GIU	нта	580	
						570						_ 4 _					1027
	gtc																1833
193	Val	Туг	Leu	Phe	Asn	Asn	Ala	Thr	Gly	Ala	Ser	Val	Thr	Ala	GIu	Arg	

RAW SEQUENCE LISTING

DATE: 04/08/2002 TIME: 16:09:37 PATENT APPLICATION: US/09/534,861A

Input Set : A:\15313SEQ.txt

Output Set: N:\CRF3\04082002\I534861A.raw

194					585					590					595		
	ctq	qtc	ata	cac		atq	qac	tcq	gca	cac	aac	cag	ctc	tcc	aat	gag	1881
				His													
198				600			_		605					610			
200	gac	gat	ggc	atg	tat	ctt	cat	caa	gtt	ctt	gaa	tct	cgt	cat			1923
201	Asp	Asp	Gly	Met	Tyr	Leu	His	Gln	Val	Leu	Glu	Ser	Arg	His			
202			615					620					625				
204	taa	taag	cta (catt	ggat	ca aa	agaa	gatca	a cca	aggga	aagg	gca	attc	ata (cata	aatcga	1983
206	atc	attc	tgc a	acaa	cata	gc ti	tgca	gcate	g car	ttga	aaca	tct	gtat	ttg (gatca	atcttc	2043
208	ttc	attt	atg :	tcata	agtga	aa ci	tata	ttaci	t tt	gtaaa	aaaa	aaaa	aaaa	aaa a	a		2094
	B ttcatttatg tcatagtgaa ctatattact ttgtaaaaaa aaaaaaaaaa																
212	< 11	1 > L	ENGT	H: 63	26												
213	<21	2> T	YPE:	PRT													
				ISM:		ley											
				NCE:													
		Gly	Ser	His	-	Lys	Pro	Pro	Leu		Tyr	Ala	Tyr	Lys		Leu	
219				_	5					10					15	_	
	Pro	Ser	Asp	Ala	Ala	Asp	Gly	Lys	_	Thr	Gly	Cys	Met	_	Trp	Ser	
223		_		20	1	_	1		25	- 1			1	30	** 1	1	
	Ala	Cys		Thr	Val	Leu	Thr		Ser	Ala	Met	Ala		val	val	Val	
227		. 1 -	35	T	τ	a 1 -	Q 2	40	3	16 a b	<i>(</i> 71	.31.5	45	1/- 1	Nan	@1	
	СТА		1111	Leu	Leu	Ala	55	Leu	AIG	мес	GIU	60 60	Ald	val	ASP	GLU	
231	<i>(</i> 21.)	50 Ala	Λla	Ala	C117	C111		Dro	Trn	cor	∧ cn		Mot	Lou	aln.	Trn	
235		нта	на	міа	СТУ	70	rne	PIO	пр	ser	75	SLU	Mec	Leu	GIII	80	
		Δra	Sar	Gly	Tur		Dhe	Gln	Thr	Δla		Asn	Tur	Met	Ser		
239	13.1.11	Arg	301	Ory	85	1113	1110	JIII	1111	90	LyS	11511	1 1 1	1100	95	p	
	Pro	Asn	Glv	Leu		Tvr	Tvr	Ara	Glv		Tvr	His	Met	Phe		Gln	
243			011	100		-1-	-1-	•••	105		- 1 -			110	- 1 -		
	Tyr	Asn	Pro	Val	Gly	Thr	Asp	Trp		Asp	Gly	Met	Glu	Trp	Gly	His	
247	•		115		1			120	•	•	•		125	-	-		
250	Ala	Val	Ser	Arg	Asn	Leu	Val	Gln	Trp	Arg	Thr	Leu	Pro	Ile	Ala	Met	
251		130		-			135		_			140					
254	Val	Ala	Asp	Gln	Trp	Tyr	Asp	Ile	Leu	Gly	Val	Leu	Ser	Gly	Ser	Met	
255	145					150					155					160	
258	Thr	Val	Leu	Pro	Asn	Gly	Thr	Val	Ile	Met	Ile	Tyr	Thr	Gly	Ala	Thr	
259					165					170					175		
262	Asn	Ala	Ser	Ala	Val	Glu	Val	Gln	Cys	Ile	Ala	Thr	Pro	Ala	Asp	Pro	
263				180					185					190			
	Asn	Asp		Leu	Leu	Arg	Arg	_	Thr	Lys	His	Pro		Asn	Pro	Val	
267			195					200					205				
	Пlе	-	Ser	Pro	Pro	Gly		Gly	Thr	Lys	Asp		Arg	Asp	Pro	Met	
271	~ 1	210	_	_		~ 7	215	_	~ 1	en l		220	æ.1			a 1	
274		Ala	Trp	Tyr	Asp		Ser	Asp	GIu	Thr		Arg	Inr	Leu	Leu		
	225	т	1	N = -	17.2 -	230	G1	77 4 =	TT 2 -	7	235	т1 -	λl -	Mat	Mat	240	
	ser	LYS	Asp	Asp		ASP	GTÀ	HIS	HIS		GIÀ	11e	Ala	мет	мет 255	īλī	
279	Luc	Thr	1	λας	245 Pho	Lou	Acn	Tur	Clu	250	Tlo	Dro	C1:	TIO		Изе	
202 283	LyS	1111	L/S	Asp 260	rne	Leu	ASII	тАт	265	reu	TIG	PIU	оту	270	Leu	1113	
₽ 03				200					200					2/0			

RAW SEQUENCE LISTING DATE: 04/08/2002

PATENT APPLICATION: US/09/534,861A TIME: 16:09:37

Input Set : A:\15313SEQ.txt

Output Set: N:\CRF3\04082002\I534861A.raw

286 287	Arg	Val	Val 275	Arg	Thr	Gly	Glu	Trp 280	Glu	Cys	Ile	Asp	Phe 285	Tyr	Pro	Val
	Gly			Ser	Ser	Asp			Ser	Glu	Met			Val	Leu	Lys
291		290					295					300				
294 295	Ala 305	Ser	Met	Asp	Asp	Glu 310	Arg	His	Asp	Tyr	Tyr 315	Ser	Leu	Gly	Thr	Tyr 320
298	Asp	Ser	Ala	Ala	Asn	Thr	Trp	Thr	Pro	Ile	Asp	Pro	Glu	Leu	Asp	Leu
299					325		_			330					335	
302	GIŢ	Ile	Gly	Leu 340	Arg	Tyr	Asp	Trp	G1y 345	Lys	Phe	Tyr	Ala	Ser 350	Thr	Ser
306	Phe	Tyr	Asp	Pro	Ala	Lys	Asn	Arg	Arg	Val	Leu	Met	Gly	Tyr	Val	Gly
307			355					360					365			
310 311	Glu	Val 370	Asp	Ser	Lys	Arg	Ala 375	Asp	Val	Val	Lys	Gly 380	Trp	Ala	Ser	Ile
	i31 n		Val	Pro	Δrσ	Thr		Δla	Len	Asn	Glu		Thr	Ara	Thr	Asn
315	385	DCI	,	110	9	390	·uı	7.1 Cd	LCu.	пор	395		1111	**** 9		400
		Leu	Leu	Trp	Pro		Glu	Glu	Ile	Glu	Thr	Leu	Arg	Leu	Asn	Ala
319				1	405					410			,		415	
322	Thr	Glu	Leu	Thr	Asp	Val	Thr	Ile	Asn	Thr	Gly	Ser	Val	Ile	His	Ile
323				420	-				425		_			430		
326	Pro	Leu	Arg	Gln	Gly	Thr	His	Ala	Arg	His	Ala	Glu	Ala	Ser	Phe	His
327			435		_			440					445			
330	Leu	Asp	Ala	Ser	Ala	Val	Ala	Ala	Leu	Asn	Glu	Ala	Asp	Val	Gly	Tyr
331		450					455					460				
3 3 4	Asn	Cys	Ser	Ser	Ser	Gly	Gly	Ala	Val	Asn	Arg	Gly	Ala	Leu	Gly	Pro
335	465					470					475					480
338	Phe	Gly	Leu	Leu	Val	Leu	Ala	Ala	Gly	Asp	Arg	Arg	Gly	Glu	Gln	Thr
339					485					490					495	
342	Ala	Val	Tyr	Phe	Tyr	Val	Ser	Arg	_	Leu	Asp	Gly	Gly		His	Thr
343				500					505					510		
	Ser	Phe	_	Gln	Asp	Glu	Leu	_	Ser	Ser	Arg	Ala	_	Asp	Val	Thr
3.17			515					520	_				525			_
	Lys		Val	Ile	Gly	Ser		Val	Pro	Val	Leu		Gly	Glu	Ala	Leu
351		530	_	1	_	1	535		~	~ 1	,	540	a 1	-1	_	
		Met	Arg	Val	Leu		Asp	HIS	Ser	He		GIn	GIY	Phe	Asp	
355	545	. 7.1		m l	m1	550	m l	Q		** - 1	555	D	14 - b	01	C	560
	QT.	raΤλ	Arg	Thr		мет	ınr	ser	Arg	570	lyr	Pro	мет	GIU		1 À I.
359	(71 n	1	7 l n	1	565	Т	Lou	Dho	700		3 1 5	Thr	C1	x 1 ~	575	Val
363	(3 T II	IJLU	Ala	Arg 580	val	туг	Leu	PHE	585	ASII	Ald	1111	GIY	590	ser	val
	Thr	۸la	C1.,		T ou	Wal	Wal	II i a		Mot	N an	Cor	λla		Nan	Cln
367	1111	Ald	595	Arg	reu	Val	Val	600	GIU	мес	ASP	ser	605	піз	ASII	GIII
	Lau	car		Glu	λcn	λcn	C1v		Tur	Lou	Uic	Cln		T All	Clu	Sar
371	1.1.T.U.	610	ASII	Gru	чэр	rsh	615	rict	тут	ьcu	1113	620	vu1	шeu	JLU	Jei
	Arq						010					J 2 J				
375	-	****														
)> SF	EO II	NO:	3											
			-	4: 30												
		2.> TY														

147

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/534,861A

DATE: 04/08/2002 TIME: 16:09:38

Input Set : A:\15313SEQ.txt

Output Set: N:\CRF3\04082002\I534861A.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application Number

L:474 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 L:490 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12